

CLAIMS

1. A method for producing monosaccharides from biomass comprising: a first step in which a biomass is pretreated in 65 to 85 (w/w)% sulfuric acid at a temperature of 30 to 70°C,
5 and a second step in which the first step treatment product pretreated in the first step is subjected to saccharification treatment in 20 to 60 (w/w)% sulfuric acid at a temperature of 40 to 100°C.
2. The method for producing monosaccharides according to
10 claim 1 having a third step in which the second step treatment product resulting from saccharification treatment in the second step is subjected to monosaccharification treatment in 0.5 to 5 (w/w)% sulfuric acid at a temperature of 110 to 150°C.
3. The method for producing monosaccharides according to
15 claim 1 further having a step 2A, in which the treatment product of the second step resulting from saccharification treatment in the second step is subjected to filtration, and a step 2B, in which the filtrate following step 2A is separated into sugar and acid.
- 20 4. The method for producing monosaccharides according to claim 1 having a step in which the sulfuric acid is sprayed onto and mixed with the biomass followed by kneading.
5. The method for producing monosaccharides according to claim 1, wherein the weight-based mixing ratio of the sulfuric

acid to biomass is 0.3 to 5.0.

6. The method for producing monosaccharides according to claim 3, wherein a washing filtrate, obtained by washing the solid after step 2A, is used.

5 7. The method for producing monosaccharides according to claim 3, wherein a simulated moving bed chromatographic separation device is used for the separation into sugar and acid in step 2B.

8. The method for producing monosaccharides according to
10 claim 3, wherein low-concentration sulfuric acid after step 2B is used for the sulfuric acid of the second step.

9. The method for producing monosaccharides according to claim 1, wherein the biomass is a cellulose-based biomass.

10. A monosaccharide production device provided with: a
15 sulfuric acid spraying and mixing device, which sprays 65 to 85 (w/w) % sulfuric acid onto a biomass and mixes the sulfuric acid and biomass by rotating to obtain a sulfuric acid-sprayed/mixed biomass, a continuous kneading device which kneads the sulfuric acid-sprayed/mixed biomass from the
20 sulfuric acid spraying and mixing device by applying shear force to obtain a kneaded product, and a hydrolysis reaction device which adds water or low-concentration sulfuric acid to the first step treatment product in the form of the kneaded product from the continuous kneading device to dilute the sulfuric acid

concentration to 20 to 60 (w/w) % followed by treatment at a temperature of 40 to 100°C; wherein, sequential intermediate products are continuously sent from the sulfuric acid-spraying/mixing device to the hydrolysis reaction device.